

STORMS AND WEATHER WARNINGS.

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WASHINGTON FORECAST DISTRICT.

The first and second decades of the month were without unusual meteorological features. During much of the time the prevailing conditions were those normal to the month, i. e., quite warm and humid and more or less showery. A radical change from the previously prevailing type of weather and temperature set in near the close of the second decade, when on the 21st, an extensive area of high barometric pressure with attendant cool weather appeared over the Northwestern States. At the same time, the barometric pressure was high off the South Atlantic coast. Between these two systems of high pressure there was a well-defined trough of low pressure, extending from the Great Lakes southward to Mexico, in which a cyclone of considerable intensity formed during the succeeding 24 hours. This disturbance gained great intensity while passing eastward to the Canadian Provinces and necessitated the display of storm warnings on the North Atlantic coast at 9 p. m. of the 21st. Previously, at 11 a. m. of the same day, the following advisory information was sent Atlantic ports and disseminated by radiotelegraph:

Disturbance over Great Lakes will increase in intensity and move eastward. The winds will become fresh and possibly strong on the North Atlantic coast late to-night and Wednesday morning, with showers and probably fog.

As this disturbance passed over Newfoundland the pressure at or near its center read slightly below 29 inches. Following the disturbance in question, the northwestern area of high barometer spread eastward and southward and brought the first pronounced cool wave of the late summer to nearly all parts of the country east of the Rocky Mountains, and at a number of points in the Northern States produced the lowest temperatures of record for the month of August. It was attended by light frosts along the northern border of the Washington Forecast District. Moreover, it required the issue on the 21st and 22d of frost warnings for the cranberry bogs of New Jersey and Massachusetts.

Following the cool wave referred to in the preceding paragraph, the weather quickly returned to normal and nothing of an unusual nature occurred during the remainder of the month in the Washington Forecast District, although small-craft warnings were necessary and were issued for the North Atlantic coast on the 28th, when a cyclone of moderate intensity was passing down the St. Lawrence Valley. Fresh and strong winds and squalls occurred on the North Atlantic coast the afternoon and night of the 28th.

The region of the West Indies and the Gulf of Mexico were free from tropical cyclones during the month, this being accounted for by reason of the fact that the northeast trade extended well south to the north coast of South America throughout the month. Nevertheless, there were indications furnished by abnormal wind directions, the evening of the 29th that there was a disturbance some distance to the eastward of the island of St. Martin and the following advisory information was sent the District Forecaster at San Juan, Porto Rico:

Slight indications tonight of a disturbance some distance east of St. Martin. It is questionable whether it is fully organized.

No further trace was had of this disturbance until several days later when it affected the wind and weather conditions at Bermuda, the winds becoming fresh and

strong with heavy rains thereabouts during September 2 to 4. Subsequently this disturbance moved northward and appeared on the 9th, as shown by meteorological observations received by radio, as a disturbance of considerable severity south of Newfoundland. The path of this disturbance will be shown in the September number of the MONTHLY WEATHER REVIEW.

CHICAGO FORECAST DISTRICT.

Perhaps the most noteworthy feature of the weather conditions in the Chicago Forecast District during August, 1923, was the occurrence, early in the last decade, of a general cool wave that resulted in frost in portions of North Dakota, Minnesota, Wisconsin, Michigan, and northern Indiana. At Detroit, Mich., the temperature fell to 44°, the lowest of record in August at that station. Generally speaking, only slight damage was caused by the frosts. The accompanying high-pressure area was of rather unusual intensity and magnitude for the season. Closely following this cool wave was another, but the area affected was confined to eastern North Dakota, northern Minnesota, and Wisconsin. Over those States light frost occurred in areas, but in a few cases the formation was heavy.

The following frost warnings were issued in connection with these two cool waves:

21st to 24th, inclusive: Wisconsin cranberry interests.

22d and 24th: Wisconsin tobacco interests.

24th: Northeastern Minnesota, northern Wisconsin, upper Michigan, northern lower Michigan.

Earlier in the month, on the 1st, 4th, 14th, and 15th, advisory frost warnings were issued for the Wisconsin cranberry interests. Although no frosts occurred on those occasions, the bog temperatures on one or two dates were only slightly above the freezing point.

The only storm warning issued during the month was that on the 21st in connection with a disturbance that on the morning of that date was central over lower Michigan, with increasing energy, it having moved rapidly eastward during the preceding 24 hours from the northern Rocky Mountain region in advance of the marked high pressure area referred to above. This disturbance continued its rapid eastward movement and by the evening of the 21st was central over the Middle St. Lawrence Valley with a still further increase in energy, the central pressure being 29.28 inches, at Montreal. In connection with this disturbance southwest storm warnings were issued on the morning of the 21st for the lower lakes, northwest warnings for Lake Huron, and small craft warnings for Lakes Michigan and Superior. In the early afternoon of the 21st northwest warnings were issued for the eastern shore of Lake Michigan. Owing to the rapid movement of the disturbance the warnings were lowered on the evening of the 21st over the last-named section, as well as over Lake Erie. All these warnings were verified.

In addition to the small-craft warnings referred to in the foregoing, the following warnings of that character were issued during the month:

13th: At Houghton, Mich., by the local official.

14th: Lakes Superior, Huron, Erie, and Ontario, by the District Forecast Center.

19th: At Alpena, Mich., by the local official.

24th: All the Great Lakes, except central and southern Lake Michigan, by the District Forecast Center.

28th: Lakes Huron, Erie, and Ontario, by the District Forecast Center.—C. A. Donnel.